

SEQUENCE LISTING

<110> Sakiyama-Elbert, Shelly E.
Hubbell, Jeffrey A.

<120> Controlled Release of Non-Heparin Binding Growth
Factors from Heparin Containing Matrices

<130> ETH 108

<140> 09/298,084

<141> 1999-04-22

<160> 31

<170> PatentIn Ver. 2.1

<210> 1

<211> 14

<212> PRT

<213> Homo sapiens

<220>

<221> MOD_RES

<222> (2)

<223> Xaa is bAla (Beta Alanine)

<400> 1

Lys Xaa Phe Ala Lys Leu Ala Ala Arg Leu Tyr Arg Lys Ala
1 5 10

<210> 2

<211> 8

<212> PRT

<213> Homo sapiens

<400> 2

Tyr Lys Lys Ile Ile Lys Lys Leu
1 5

<210> 3

<211> 14

<212> PRT

<213> Homo sapiens

<400> 3

Lys His Lys Gly Arg Asp Val Ile Leu Lys Lys Asp Val Arg
1 5 10

<210> 4
<211> 14
<212> PRT
<213> Homo sapiens

<220>
<221> MOD_RES
<222> (2)
<223> Xaa is bALA (Beta Alanine)

<400> 4
Arg Xaa Phe Ala Arg Leu Ala Ala Arg Leu Tyr Arg Arg Ala
1 5 10

<210> 5
<211> 12
<212> PRT
<213> Homo sapiens

<400> 5
Lys Asp Pro Lys Arg Leu Tyr Arg Ser Arg Lys Tyr
1 5 10

<210> 6
<211> 11
<212> PRT
<213> Homo sapiens

<400> 6
Cys Val Leu Ser Arg Lys Ala Val Arg Arg Ala
1 5 10

<210> 7
<211> 10
<212> PRT
<213> Homo sapiens

<400> 7
Cys Ala Leu Ser Arg Lys Ile Gly Arg Thr
1 5 10

<210> 8
<211> 9
<212> PRT
<213> Homo sapiens

<400> 8
Cys Thr Leu Thr Ile Lys Arg Gly Arg
1 5

<210> 9
<211> 70
<212> PRT
<213> Homo sapiens

<400> 9
Ala Leu Asp Thr Asn Tyr Cys Phe Ser Ser Thr Glu Lys Asn Cys Cys
1 5 10 15
Val Arg Gln Leu Tyr Ile Asp Phe Arg Lys Asp Leu Gly Trp Lys Trp
20 25 30
Ile His Glu Pro Lys Gly Tyr His Ala Asn Phe Cys Leu Gly Pro Cys
35 40 45
Pro Tyr Ile Trp Ser Leu Asp Thr Gln Tyr Ser Lys Val Leu Ala Leu
50 55 60
Tyr Asn Gln His Asn Pro
65 70

<210> 10
<211> 70
<212> PRT
<213> Homo sapiens

<400> 10
Ala Leu Asp Ala Ala Tyr Cys Phe Arg Asn Val Gln Asp Asn Cys Cys
1 5 10 15
Leu Arg Pro Leu Tyr Ile Asp Phe Lys Arg Asp Leu Gly Trp Lys Trp
20 25 30
Ile His Glu Pro Lys Gly Tyr Asn Ala Asn Phe Cys Ala Gly Ala Cys
35 40 45

Pro Tyr Leu Trp Ser Ser Asp Thr Gln His Ser Arg Val Leu Ser Leu
 50 55 60

Tyr Asn Thr Ile Asn Pro
 65 70

<210> 11
 <211> 70
 <212> PRT
 <213> Homo sapiens

<400> 11
 Ala Leu Asp Thr Asn Tyr Cys Phe Arg Asn Leu Glu Glu Asn Cys Cys
 1 5 10 15

Val Arg Pro Leu Tyr Ile Asp Phe Arg Gln Asp Leu Gly Trp Lys Trp
 20 25 30

Val His Glu Pro Lys Gly Tyr Tyr Ala Asn Phe Cys Ser Gly Pro Cys
 35 40 45

Pro Tyr Leu Arg Ser Ala Asp Thr Thr His Ser Thr Val Leu Gly Leu
 50 55 60

Tyr Asn Thr Leu Asn Pro
 65 70

<210> 12
 <211> 42
 <212> PRT
 <213> Homo sapiens

<400> 12
 Gly Ala Ser Ala Ala Pro Cys Cys Val Pro Gln Ala Leu Glu Pro Leu
 1 5 10 15

Pro Ile Val Tyr Tyr Val Gly Arg Lys Pro Lys Val Glu Gln Leu Ser
 20 25 30

Asn Met Ile Val Arg Ser Cys Lys Cys Ser
 35 40

<210> 13
 <211> 42
 <212> PRT

<213> Homo sapiens

<400> 13

Glu Ala Ser Ala Ser Pro Cys Cys Val Ser Gln Asp Leu Glu Pro Leu
1 5 10 15

Thr Ile Leu Tyr Tyr Ile Gly Lys Thr Pro Lys Ile Glu Gln Leu Ser
20 25 30

Asn Met Ile Val Lys Ser Cys Lys Cys Ser
35 40

<210> 14

<211> 42

<212> PRT

<213> Homo sapiens

<400> 14

Glu Ala Ser Ala Ser Pro Cys Cys Val Pro Gln Asp Leu Glu Pro Leu
1 5 10 15

Thr Ile Leu Tyr Tyr Val Gly Arg Thr Pro Lys Val Glu Gln Leu Ser
20 25 30

Asn Met Val Val Lys Ser Cys Lys Cys Ser
35 40

<210> 15

<211> 294

<212> PRT

<213> Homo sapiens

<400> 15

Phe Ser Gln Ser Phe Arg Glu Val Ala Gly Arg Phe Leu Ala Ser Glu
1 5 10 15

Ala Ser Thr His Leu Leu Val Phe Gly Met Glu Gln Arg Leu Pro Pro
20 25 30

Asn Ser Glu Leu Val Gln Ala Val Leu Arg Leu Phe Gln Glu Pro Val
35 40 45

Pro Gln Gly Ala Leu His Arg His Gly Arg Leu Ser Pro Ala Ala Pro
50 55 60

Lys Ala Arg Val Thr Val Glu Trp Leu Val Arg Asp Asp Gly Ser Asn

65		70		75		80
Arg Thr Ser Leu Ile Asp Ser Arg Leu Val Ser Val His Glu Ser Gly						
	85		90		95	
Trp Lys Ala Phe Asp Val Thr Glu Ala Val Asn Phe Trp Gln Gln Leu						
	100		105		110	
Ser Arg Pro Pro Glu Pro Leu Leu Val Gln Val Ser Val Gln Arg Glu						
	115		120		125	
His Leu Gly Pro Leu Ala Ser Gly Ala His Lys Leu Val Arg Phe Ala						
	130		135		140	
Ser Gln Gly Ala Pro Ala Gly Leu Gly Glu Pro Gln Leu Glu Leu His						
	145		150		155	160
Thr Leu Asp Leu Arg Asp Tyr Gly Ala Gln Gly Asp Cys Asp Pro Glu						
		165		170		175
Ala Pro Met Thr Glu Gly Thr Arg Cys Cys Arg Gln Glu Met Tyr Ile						
	180		185		190	
Asp Leu Gln Gly Met Lys Trp Ala Lys Asn Trp Val Leu Glu Pro Pro						
	195		200		205	
Gly Phe Leu Ala Tyr Glu Cys Val Gly Thr Cys Gln Gln Pro Pro Glu						
	210		215		220	
Ala Leu Ala Phe Asn Trp Pro Phe Leu Gly Pro Arg Gln Cys Ile Ala						
	225		230		235	240
Ser Glu Thr Ala Ser Leu Pro Met Ile Val Ser Ile Lys Glu Gly Gly						
	245		250		255	
Arg Thr Arg Pro Gln Val Val Ser Leu Pro Asn Met Arg Val Gln Lys						
	260		265		270	
Cys Ser Cys Ala Ser Asp Gly Ala Leu Val Pro Arg Arg Leu Gln His						
	275		280		285	
Arg Pro Trp Cys Ile His						
	290					

<210> 16
 <211> 73
 <212> PRT

<213> Homo sapiens

<400> 16

Ser Pro Asp Lys Gln Met Ala Val Leu Pro Arg Arg Glu Arg Asn Arg
1 5 10 15

Gln Ala Ala Ala Ala Asn Pro Glu Asn Ser Arg Gly Lys Gly Arg Arg
20 25 30

Gly Gln Arg Gly Lys Asn Arg Gly Cys Val Leu Thr Ala Ile His Leu
35 40 45

Asn Val Thr Asp Leu Gly Leu Gly Tyr Glu Thr Lys Glu Glu Leu Ile
50 55 60

Phe Arg Tyr Cys Ser Gly Ser Cys Asp
65 70

<210> 17

<211> 73

<212> PRT

<213> Homo sapiens

<400> 17

Leu Gly Ala Arg Pro Cys Gly Leu Arg Glu Leu Glu Val Arg Val Ser
1 5 10 15

Glu Leu Gly Leu Gly Tyr Ala Ser Asp Glu Thr Val Leu Phe Arg Tyr
20 25 30

Cys Ala Gly Ala Cys Glu Ala Ala Ala Arg Val Tyr Asp Leu Gly Leu
35 40 45

Arg Arg Leu Arg Gln Arg Arg Arg Leu Arg Arg Glu Arg Val Arg Ala
50 55 60

Gln Pro Cys Cys Arg Pro Thr Ala Tyr
65 70

<210> 18

<211> 61

<212> PRT

<213> Homo sapiens

<400> 18

Ala Ala Glu Thr Thr Tyr Asp Lys Ile Leu Lys Asn Leu Ser Arg Asn

1	5	10	15
Arg Arg Leu Val Ser Asp Lys Val Gly Gln Ala Cys Cys Arg Pro Ile			
20	25	30	
Ala Phe Asp Asp Asp Leu Ser Phe Leu Asp Asp Asn Leu Val Tyr His			
35	40	45	
Ile Leu Arg Lys His Ser Ala Lys Arg Cys Gly Cys Ile			
50	55	60	

<210> 19
 <211> 27
 <212> PRT
 <213> Homo sapiens

<400> 19
Glu Asp Glu Val Ser Phe Leu Asp Ala His Ser Arg Tyr His Thr Val
1 5 10 15
His Glu Leu Ser Ala Arg Glu Cys Ala Cys Val
20 25

<210> 20
 <211> 22
 <212> PRT
 <213> Homo sapiens

<400> 20
Gly Val Ser Glu Thr Ala Pro Ala Ser Arg Arg Gly Glu Leu Ala Val
1 5 10 15

Cys Asp Ala Val Ser Gly
20

<210> 21
 <211> 72
 <212> PRT
 <213> Homo sapiens

<400> 21
Ser Ser Ser His Pro Ile Phe His Arg Gly Glu Phe Ser Val Cys Asp
1 5 10 15

Ser Val Ser Val Trp Val Gly Asp Lys Thr Thr Ala Thr Asp Ile Lys

	20		25		30										
Gly	Lys	Glu	Val	Met	Val	Leu	Gly	Glu	Val	Asn	Ile	Asn	Asn	Ser	Val
	35						40					45			
Phe	Lys	Gln	Tyr	Phe	Phe	Glu	Thr	Lys	Cys	Arg	Asp	Pro	Asn	Pro	Val
	50						55					60			
Asp	Ser	Gly	Cys	Arg	Gly	Ile	Asp								
	65					70									

<210> 22
 <211> 72
 <212> PRT
 <213> Homo sapiens

	<400> 22														
His	Ser	Asp	Pro	Ala	Arg	Arg	Gly	Glu	Leu	Ser	Val	Cys	Asp	Ser	Ile
1				5					10					15	
Ser	Glu	Trp	Val	Thr	Ala	Ala	Asp	Lys	Lys	Thr	Ala	Val	Asp	Met	Ser
			20					25					30		
Gly	Gly	Thr	Val	Thr	Val	Leu	Glu	Lys	Val	Pro	Val	Ser	Lys	Gly	Gln
	35						40					45			
Leu	Lys	Gln	Tyr	Phe	Tyr	Glu	Thr	Lys	Cys	Asn	Pro	Met	Gly	Tyr	Thr
	50						55				60				
Lys	Glu	Gly	Cys	Arg	Gly	Ile	Asp								
	65					70									

<210> 23
 <211> 71
 <212> PRT
 <213> Homo sapiens

	<400> 23														
Tyr	Ala	Glu	His	Lys	Ser	His	Arg	Gly	Glu	Tyr	Ser	Val	Cys	Asp	Ser
1				5					10					15	
Glu	Ser	Leu	Trp	Val	Thr	Asp	Lys	Ser	Ser	Ala	Ile	Asp	Ile	Arg	Gly
			20					25					30		
His	Gln	Val	Thr	Val	Leu	Gly	Glu	Ile	Lys	Thr	Gly	Asn	Ser	Pro	Val
	35						40					45			

Lys Gln Tyr Phe Tyr Glu Thr Arg Cys Lys Glu Ala Arg Pro Val Lys
50 55 60

Asn Gly Cys Arg Gly Ile Asp
65 70

<210> 24

<211> 70

<212> PRT

<213> Homo sapiens

<400> 24

Trp Val Thr Asp Arg Arg Thr Ala Val Asp Leu Arg Gly Arg Glu Val
1 5 10 15

Glu Val Leu Gly Glu Val Pro Ala Ala Gly Gly Ser Pro Leu Arg Gln
20 25 30

Tyr Phe Phe Glu Thr Arg Cys Lys Ala Asp Asn Ala Glu Glu Gly Gly
35 40 45

Pro Gly Ala Gly Gly Gly Gly Cys Arg Gly Val Asp Arg Arg His Trp
50 55 60

Val Ser Glu Cys Val Asp
65 70

<210> 25

<211> 48

<212> PRT

<213> Homo sapiens

<400> 25

Ser Lys His Trp Asn Ser Tyr Cys Thr Thr Thr His Thr Phe Val Lys
1 5 10 15

Ala Leu Thr Met Asp Gly Lys Gln Ala Ala Trp Arg Phe Ile Arg Ile
20 25 30

Asp Thr Ala Cys Val Cys Val Leu Ser Arg Lys Ala Val Arg Arg Ala
35 40 45

<210> 26
<211> 47
<212> PRT
<213> Homo sapiens

<400> 26
Lys Arg His Trp Asn Ser Gln Cys Arg Thr Thr Gln Ser Tyr Val Arg
1 5 10 15
Ala Leu Thr Met Asp Ser Lys Lys Arg Ile Gly Trp Arg Phe Ile Arg
20 25 30
Ile Asp Thr Ser Cys Val Cys Thr Leu Thr Ile Lys Arg Gly Arg
35 40 45

<210> 27
<211> 48
<212> PRT
<213> Homo sapiens

<400> 27
Asp Lys His Trp Asn Ser Gln Cys Lys Thr Ser Gln Thr Tyr Val Arg
1 5 10 15
Ala Leu Thr Ser Glu Asn Asn Lys Leu Val Gly Trp Arg Trp Ile Arg
20 25 30
Ile Asp Thr Ser Cys Val Cys Ala Leu Ser Arg Lys Ile Gly Arg Thr
35 40 45

<210> 28
<211> 48
<212> PRT
<213> Homo sapiens

<400> 28
Arg Arg His Trp Val Ser Glu Cys Lys Ala Lys Gln Ser Tyr Val Arg
1 5 10 15
Ala Leu Thr Ala Asp Ala Gln Gly Arg Val Gly Trp Arg Trp Ile Arg
20 25 30

Ile Asp Thr Ala Cys Val Cys Thr Leu Leu Ser Arg Thr Gly Arg Ala
 35 40 45

<210> 29
 <211> 70
 <212> PRT
 <213> Homo sapiens

<400> 29
 Gly Pro Glu Thr Leu Cys Gly Ala Glu Leu Val Asp Ala Leu Gln Phe
 1 5 10 15

Val Cys Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro Thr Gly Tyr Gly
 20 25 30

Ser Ser Ser Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys Cys
 35 40 45

Phe Arg Ser Cys Asp Leu Arg Arg Leu Glu Met Tyr Cys Ala Pro Leu
 50 55 60

Lys Pro Ala Lys Ser Ala
 65 70

<210> 30
 <211> 70
 <212> PRT
 <213> Homo sapiens

<400> 30
 Gly Pro Glu Thr Leu Cys Gly Ala Glu Leu Val Asp Ala Leu Gln Phe
 1 5 10 15

Val Cys Gly Asp Arg Gly Phe Tyr Phe Asn Lys Pro Thr Gly Tyr Gly
 20 25 30

Ser Ser Ser Arg Arg Ala Pro Gln Thr Gly Ile Val Asp Glu Cys Cys
 35 40 45

Phe Arg Ser Cys Asp Leu Arg Arg Leu Glu Met Tyr Cys Ala Pro Leu
 50 55 60

Lys Pro Ala Lys Ser Ala

65

70

<210> 31

<211> 53

<212> PRT

<213> Homo sapiens

<400> 31

Asn Ser Asp Ser Glu Cys Pro Leu Ser His Asp Gly Tyr Cys Leu His
1 5 10 15

Asp Gly Val Cys Met Tyr Ile Glu Ala Leu Asp Lys Tyr Ala Cys Asn
20 25 30

Cys Val Val Gly Tyr Ile Gly Glu Arg Cys Gln Tyr Arg Asp Leu Lys
35 40 45

Trp Trp Glu Leu Arg
50